WyreStorm
DIGITAL INTEGRITY

Part Number MX-0606-PP

6 Input 6 Output single cable matrix with 2 way IR control

Part Number MX-0808-PP

8 Input 8 Output single cable matrix with 2 way IR control

Wyrestorm Pro Plus
HDBaseT Matrix Solutions

HDMI HIGH DEFINITION MULTIMEDIA INTERFACE

HDBT

3D COMPATIBLE

Instruction Manual

CE RoHS

Thank you for choosing this WyreStorm product.
Please read these instructions carefully before installing to avoid complications later.

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1. Introduction

The Wyrestorm PRO PLUS (PP) range uses a 2nd generation HDBaseT technology to sit comfortably between our PRO range of matrices and extenders and flagship HDBaseT products to enable the transmission of full, uncompressed HD 1080p video and audio, with discrete 2-way IR control over distances of up to 70m (131ft) using a single Cat5e/6/7 cable.

The MX0606 / 0808-PP Pro Plus HDBaseT Matrix models allows any of their 6 or 8 HDMI inputs to be distributed independently and simultaneously over distances of up to 70m/230ft to any of the 6 or 8 HD output displays connected, regardless of HDCP encryption, with discrete IR control.

While full HDBaseT is intended for high end, high spec installations over distances of up to 100m/328ft, 70m/230ft HDBaseT has been specifically developed for small to mid-range projects that perhaps do not necessitate such a high specification, long transmission distance, or indeed, a premium price tag.

This alternative classification of HDBaseT shares many of the same strengths as the full version, such as a 'one-cable' distribution method, the signal stability and resistance to interference, but it removes the Ethernet distribution and reduces signalling rate and resolution, while still allowing fully controllable HD distribution over single cable runs up to 70m/230ft.

As Wyrestorm systems are fully cascadable, maximum transmission range of the matrix output can be increased up to a further 7 times by connecting multiple 70m/230ft HDBaseT extender sets for longer distributions.

Simultaneous HDMI outputs, mirrored to the HDBaseT outputs allow easy connection to AV receivers or additional displays, essentially doubling the number of outputs. Duplicate HDMI also enables non-UTP transmission with alternative Wyrestorm Extender products such as Coax, Fibre or full HDBaseT for unrivalled choice and compatibility.

The Pro Plus range offers flexibility and reliability of signal distribution, with innovative features and an ease of use to deliver HD audio and video, controlled via IR, RS232 or LAN, all on a single Cat5e/6/7 cable that removes the need for additional control and video cables on installations, whether in a residential or commercial setting.

For further information on this product and other Wyrestorm ranges, visit our website or download our latest product guide.
www.Wyrestorm.com

Part Number MX-0606-PP

Part Number MX-0808-PP

2. Features

• Quick and easy installation – set up in seconds straight out of the box.

• Simplified ports - Input: HDMI – Output: Simultaneous HDMI and integrated RJ45 connectors for a single Cat5e/6/7 UTP cable to each display point for ease of installation*

**** The inclusion of duplicate HDMI ports essentially doubles the number of outputs (though slaved to the output channel on the matrix), or allowing connection to Coax, Fibre or full HDBaseT extender sets for increased flexibility and length of distribution.***

• Conforms to IEEE-568B standards.

• Each HDMI port also supports DVI signals.

• Enables up to 6 (MX0606-PP) and 8 (MX0808-PP) HDMI video/audio devices to be independently switched through 6 (MX0606-PP) or 8 (MX0808-PP) HDMI displays or projectors for uncompressed digital distribution.

• Each output able to show any connected source simultaneously regardless of whether the input carries HDCP encryption.

• HDCP compliant with constant feed to prevent screen dropouts.

• Refined for Custom Install and Home Theatre Installations.

• Reads and copies EDID from connected devices with additional EDID configuration through customisable DIP switch settings if necessary.

• The same robust transmission technology as full HDBaseT that is far more resistant to electrostatic interference than conventional non-HDBaseT distribution.

• HDMI v1.4 with full 3D compatibility with frame packing/sequential (Blu-Ray) and interlaced stereoscopic (satellite/cable broadcasts).

• Central RS232 control – fully compatible with all market leading control systems with full integration protocols available for AMX, Control 4, Crestron, Red Eye, Nevo, RTI, Control FX, Savant, BitWise.

• LAN control – with Control 4 TELNET protocols.

• Wide range, two way discrete IR control between source and display and vice versa (30 KHz to 56 KHz frequency).

• 2K resolution.

• 36bit Deep Colour (compared to 48bit with Full HDBaseT, and 24bit PRO).

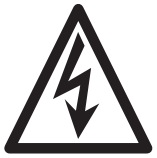
• 6.75 Gbps bandwidth range/signalling rate (compared to 10.2Gbps with full HDBaseT).

• 70m (230ft) distance range of matrix/extenders – (compared to 100m/328ft HDBaseT or 50m/164ft PRO) can be lengthened by connecting to multiple 70m extender sets or used with any other Wyrestorm extenders, such as Coax, full HDBaseT or Fibre (distances under perfect transmission conditions*)

• Each Output port can be fed to multiple displays (cascaded).

• Supports all high definition resolution

3. Safety Precautions



WARNING
To reduce the risk of fire, electric shock or product damage:

1. Do not expose this apparatus to rain, moisture, sprays, drips or splashes and ensure that no objects containing liquids are placed on the apparatus, including cups, glasses and vases.

2. Do not place this unit in a confined space such as enclosed shelving, cabinets or bookshelves. Ensure the unit is adequately ventilated.

3. To prevent the risk of electric shock or fire hazard due to overheating, do not cover the unit or obstruct ventilation openings with material, newspaper, cardboard or anything that may restrict airflow into the unit.

4. Do not install near external heat sources such as radiators, heat registers, boilers or any device that produces heat such as amplifiers or computers and do not place near sources of naked flame.

5. Unplug apparatus from power supply during lightening storms or when unused for long periods of time.

6. Protect the power cable from being walked on, pinched or restricted in any way, especially at plug connections.

7. Only use attachments/accessories specified by the manufacturer.

8. Units contain non-servicable parts - Refer all servicing to qualified service personnel.

4. Package Contents

- MX0606-PP / MX0808-PP main unit
- Printed instruction manual
- Flash USB stick containing PC control software and digital copy of instruction manual*

*Downloadable manual can be found at **www.wyrestorm.com**

- Matrix mounting brackets
- 1 x 100~240V AC Power cable power supply
- 1 x IR Extension cable
- 1 x USB to UART cable
- 1 x RS232 to RS485 converter
- 6 / 8 x IR TX Emitters (small sensor for Input source)
- 6 / 8 x IR RX Emitters (larger sensor for Output display)
- 1 x Wyrestorm matrix remote control. (Battery not included)

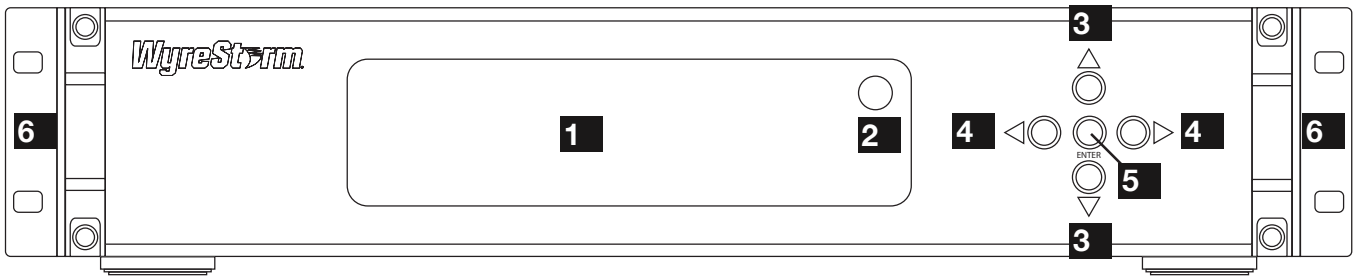
5. Specification

Operating Temperature Range	0 to +35°C (32 to +95°F)
Operating Humidity Range	5 to 90 % RH (no condensation)
Output Bandwidth Signalling Rate	6.75Gbps
Input Video Signal	0.5-1.0 volts p-p
Input DDC Signal	5 volts p-p (TTL)
Maximum Single Link Range	1080p 36bit Deep Colour
Transmission distance	1080p signal up to 70m / 230ft (Under perfect transmission conditions including straight cable runs with no electrical interference, bends, kinks, patch panels or wall outlets.) Using Wyrestorm RX-1UTP-IR-70 Display receivers behind each output display. **Single Cat5e/6/7 Display Receiver (70m)** **Part Number** RX-1UTP-IR-70
Video Format Supported	VESA: 640x480, 800x600, 1024x768, 1280x1024, 1600x1200, 1920x1200 DTV/HDTV: 480i/576i/480p/576p/720p/1080i/1080p
BTU Rating	238.7 (MX0606-PP) 204.6 (MX0808-PP)

Output Video	HDMI v1.4 with full 3D compatibility with Frame Sequential (Blu-ray) and Stereoscoptic (satellite/cable broadcasts)
Audio Format Supported	DTS-HD, Dolby True HD
Max. Transmission distance over HDMI	15m / 49ft – if a longer HDMI connection is necessary, we offer the Wyrestorm in-line HDMI to HDMI coupler RP-HD-HD. **In-line HDMI to HDMI coupler** **Part Number** RP-HD-HD
Max. Transmission distance over Cat5e/6/7	70m / 230ft – using Wyrestorm RX-1UTP-IR-70 Display Receiver.
Power Consumption	70Watts max. (MX0606-PP) 60Watts max. (MX0808-PP)
Power Supply	100-240V AC
Dimensions	440mm x 100mm x 340mm /17.3” x 3.9 x 13.4”
Weight	6.7 Kg / 14.8lbs
Rack Space Required	2U

6. Front Panel

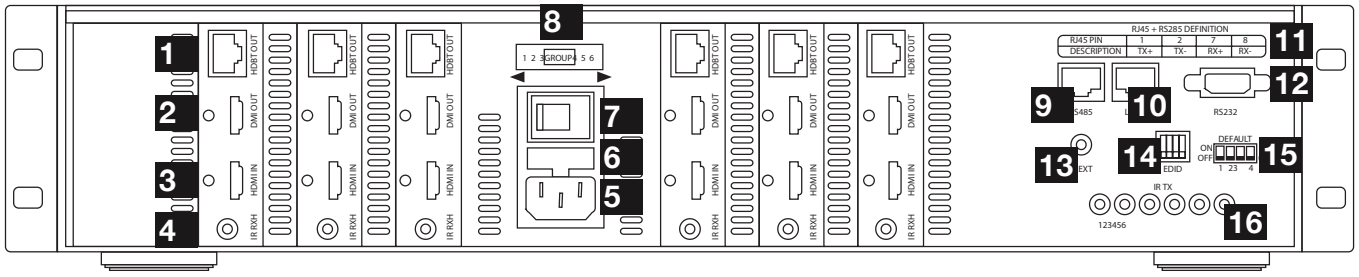
1. LED Input/Output Select Screen
2. IR Receive Window
3. Input Select Buttons (UP/DOWN)
4. Output Select Buttons (Left/Right)
5. Enter Selection Buttons
6. Rack Brackets



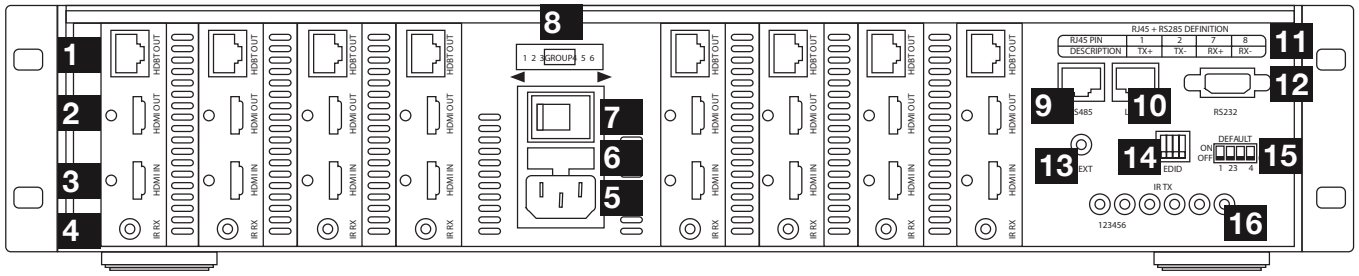
7. Rear Panel

1. HDBT Output ports (RJ45 Cat5e/6/7)
2. Duplicate HDMI Output ports (mirrors HDBT Outputs)
3. HDMI Input ports
4. IR Receiver port (IR RX)
5. AC 100 – 240V power input
6. Fuse (lift cover to replace)
7. Power switch
8. Input/Output port grouping indicator
9. RS485 port
10. LAN port
11. RJ45 to RS485 definition indicator
12. RS232
13. IR Extension port (IR EXT)
14. EDID DIP Switch (for manual EDID setting)
15. EDID switch default diagram
16. IR TX Receiver ports (corresponds to input ports)

Part Number MX-0606-PP

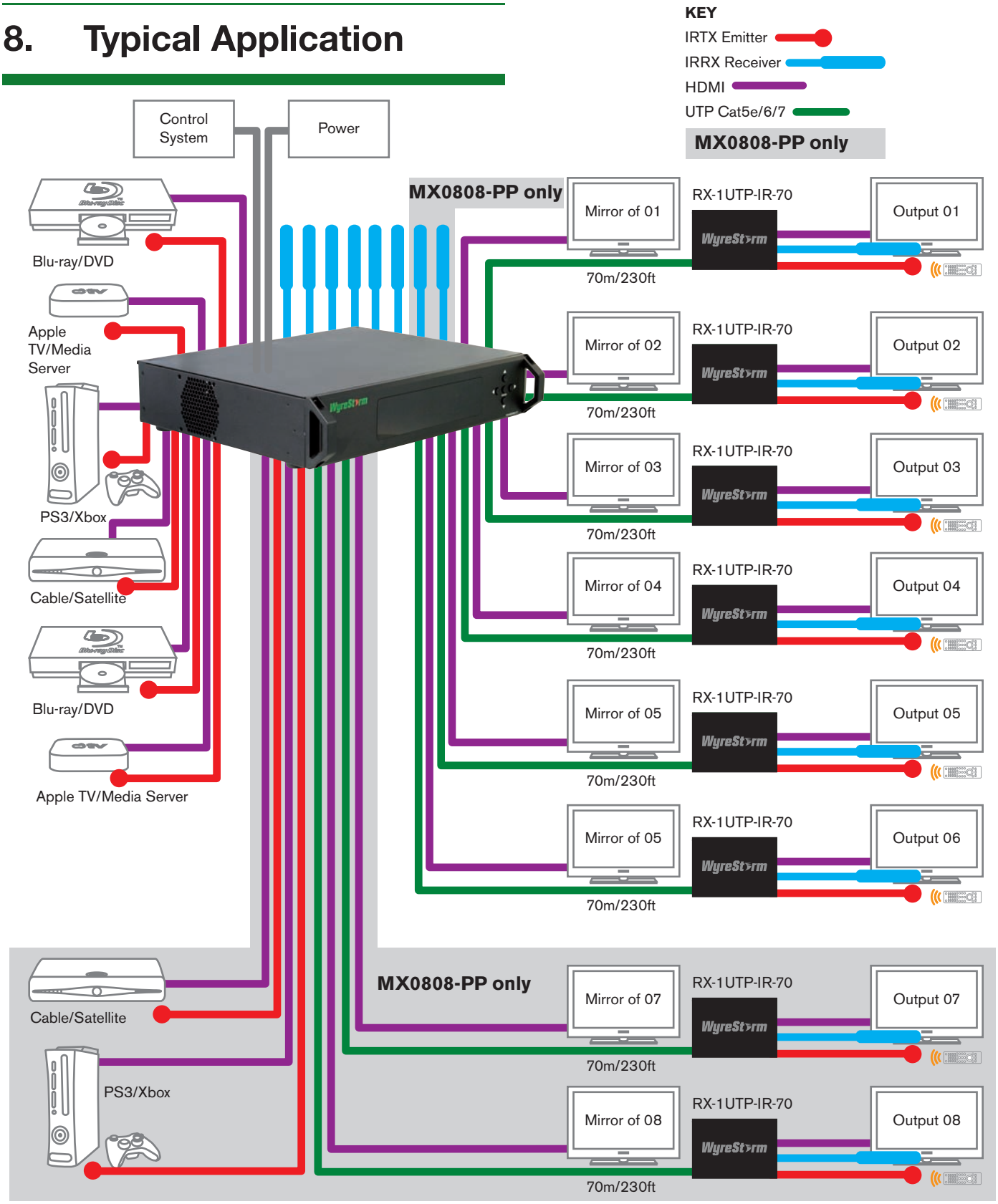


Part Number MX-0808-PP



RS232 and LAN ports are for matrix control. Ensure crossover UTP cable is used to connect the LAN directly to a computer or server, and a direct/straight through connection is used to connect via a router/switch. Connection will fail if the incorrect cable is used.

8. Typical Application

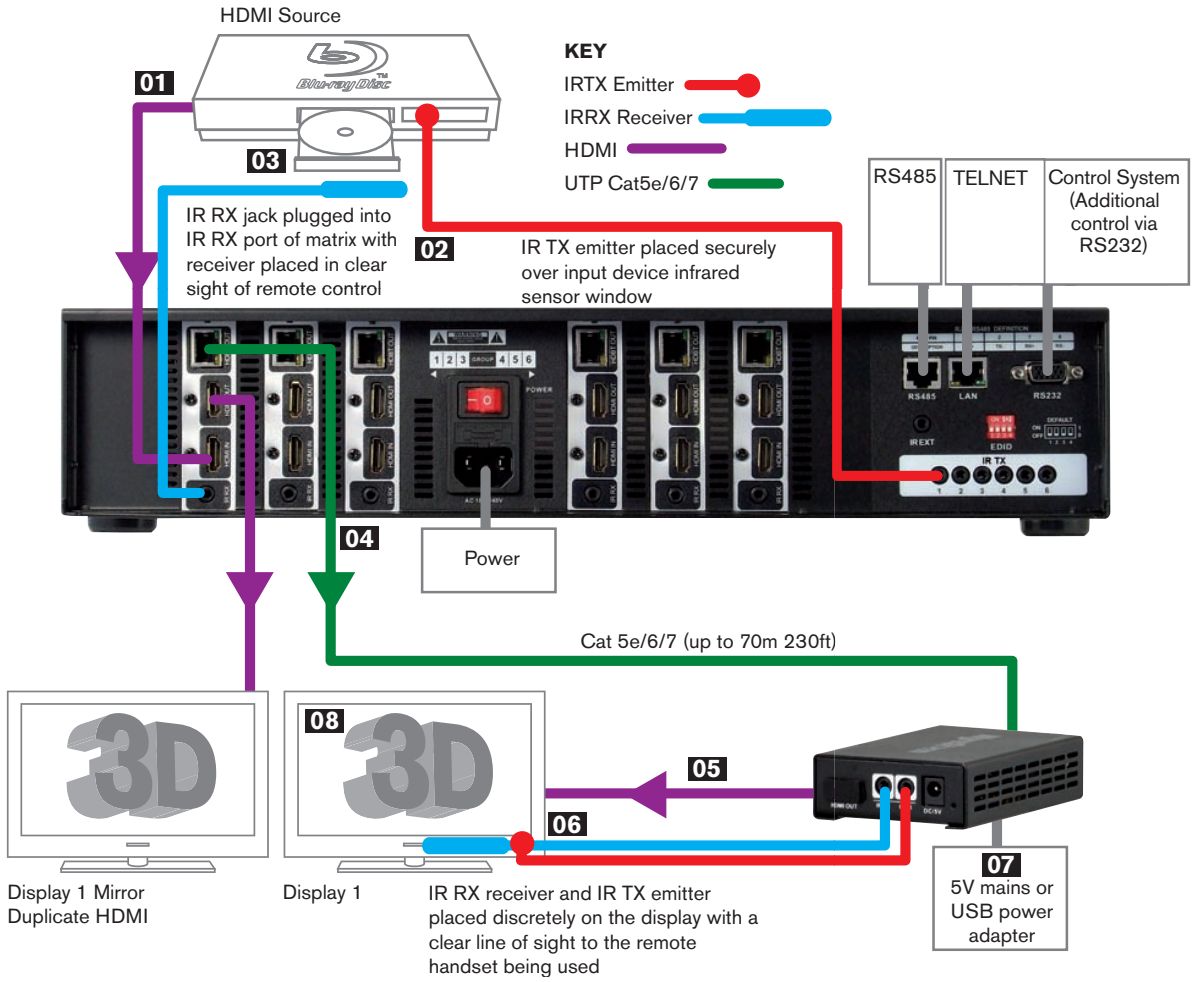


Cat 5e/6 cable performance

5m	10m	15m	20m	25m	30m	35m	40m	45m	50m	60m	70m	80m
HDBaseT Lite range 1080p MX0606-PP / MX0808-PP with RX-1UTP-IR70 display receiver												
16ft	32ft	49ft	65ft	82ft	98ft	114ft	131ft	147ft	164ft	196ft	229ft	262ft

1080p signal cut out

9. Connection


HDMI Source
01
03
KEY
IRTX Emitter
IRRX Receiver
HDMI
UTP Cat5e/6/7
RS485
TELNET
Control System (Additional control via RS232)
IR RX jack plugged into IR RX port of matrix with receiver placed in clear sight of remote control
02
IR TX emitter placed securely over input device infrared sensor window
04
Power
Cat 5e/6/7 (up to 70m 230ft)
08
05
06
07
5V mains or USB power adapter
Display 1 Mirror Duplicate HDMI
Display 1
IR RX receiver and IR TX emitter placed discretely on the display with a clear line of sight to the remote handset being used

1 Connect each HDMI input source (such as: HD-DVD, PS3/, XBOX360, satellite/cable, Blu-Ray etc.) to the HDMI inputs of the MATRIX.

Do Not Hotswap plugs! - Please insert and extract cables carefully with the power SWITCHED OFF. Connecting and disconnecting while powered can result in damage to circuitry.

2 Attach the IR TX emitters directly over the infrared receiving sensor of each input source using the adhesive backing. You may need to adjust the position of the emitter after installation to achieve the best results. Sometimes moving the sensor to different areas of the source facia can improve IR performance.

Plug the 3.5mm jack of the IR TX emitter into the corresponding number IR TX port on the rear panel of the MATRIX.

3 For two-way IR controlling the display from the matrix side: Plug the 3.5mm jack of the IR RX receiver into the corresponding IR RX port on the rear panel of the MATRIX, ensuring the receiver is placed in clear view to receive an IR signal.

NOTE Make sure the IR jacks are in the same number ports.

HINT Locate the infrared sensor on devices by shining a flashlight onto the display panel of sources and look for a small sensor.

4 Connect a good quality, well terminated Cat 5e/6/7 cable with an RJ45 connector wired to 568B standard at both ends from the HDBT Output port of the MATRIX to the UTP IN of the RX-1UTP-IR-70 DISPLAY RECEIVER (or, if using another Wyrestorm extender set, connect the transmitter to the matrix via the HDMI OUT port)

Ensure both RJ45 connectors are pushed securely into each port and supported by the connector strain relief clip to prevent them from becoming loose. The quality of termination for your RJ45 is essential. Poor quality terminations lead to intermittent performance and longer install times.

HINT Although all Wyrestorm products are tested

using Cat5e as standard, we suggest using Cat6 as the preferred cable due to its improved transmission capabilities.

If using a Duplicate display mirrored to the HDBT Output, connect the display via the HDMI OUT port.

ATTENTION We strongly recommend using the supplied mounting brackets to secure the MATRIX and the accompanying TRANSMITTER & DISPLAY RECEIVER baluns. Any sudden movement of these devices could lead to loss of picture and sound if connections become loose or strained, resulting in unnecessary service call backs.

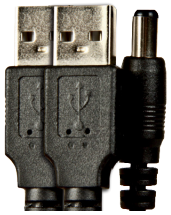
5 Connect the HDMI OUT of the DISPLAY RECEIVER to the HDMI IN of the display.

6 Plug the 3.5mm jack of the IR RX receiver into the IR RX port of the display receiver balun. Place the IR RX receiver sensor discretely on the front of the display with care taken to achieve a clear line of sight with the remote control to be used.

For two-way IR controlling the display from the matrix end: Plug the 3.5mm jack of the IR TX emitter into the corresponding IR TX port on the display receiver, ensuring the emitter is placed directly over the infra-red receiving sensor of the display using the adhesive backing.

Again, adjustment of receiver and emitter position may be needed to achieve the best IR signal distribution.

7 After ensuring the display receiver balun is fixed firmly in place behind the display, insert the 5v mains power adaptor (included) or connect the USB to 5v power cable.



8 Switch on the power to your input sources, displays, and any display receivers used.

Finally, switch on the matrix at the rear and your Wyrestorm system should now be fully connected and ready for use.

ATTENTION Remember, always switch off the matrix before unplugging any inputs or outputs – follow last on, first off protocol.

If your IR emitters and receivers are correctly placed you should now be able control both sources and displays discretely from either location.

ATTENTION If there is electrical interference or cable bends/kinks within the set up the IR is one of the first functions to fail.

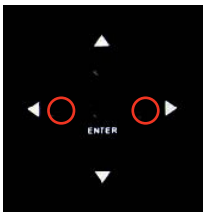
If you do not have IR control:

- Check your cables are straight with jacks firmly connected to ports.
- Check your IR sensors are unobstructed and able to receive infrared signals.
- Check direct sunlight on the emitters/receivers is not affecting the infrared signal.

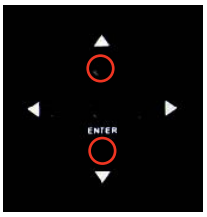
10. Basic Operation

The Wyrestorm MX0606/0808-PP is designed with ease of set-up and use in mind. Basic switching of source inputs to output displays can be achieved via the front panel control of the matrix.

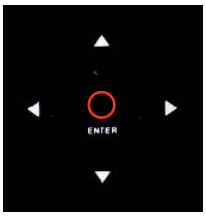
On power up, the front panel will flash as the matrix initialises. When the display stops flashing, the matrix is ready to use.



OUTPUT selection



INPUT selection



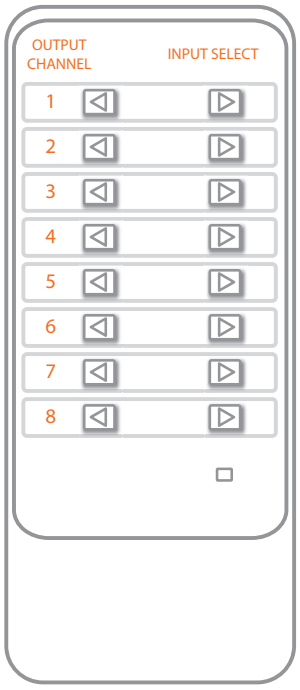
Confirm OUTPUTS/INPUTS

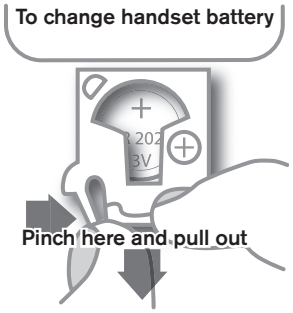
OUTPUTS are selected by pressing the LEFT and RIGHT arrow buttons to scroll forwards and backwards numerically through the displays connected to the matrix. The corresponding OUTPUT channel number will blink on the display when reached.

Likewise, the UP and DOWN arrow buttons scroll numerically through any INPUT sources connected to the system. When the desired OUTPUT and INPUT is reached, push the ENTER button to confirm the selection. The display will stop blinking to let you know the matrix has been set.

Repeated pressing of the select button of a specific output scrolls numerically through the HDMI input devices connected to the matrix, with the corresponding LEDs illustrating when a device has been selected for that particular output. The chosen input will automatically store for the output so, even when the matrix is powered off and on, the last selected input/output combination will remain.

11. Basic Remote Control





Install battery '+' side up and only use a CR2025 3v battery. Slide compartment back into the handset.

The same basic switching functions can also be accessed via the remote control.

Operation of the handset is the same regardless of location – locally (source/IR emitter) or remotely (display/IR receiver).

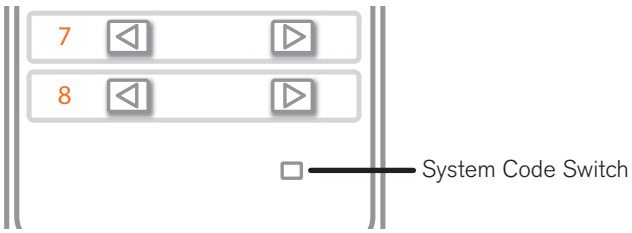
Simply toggle through the INPUT sources connected to the matrix by pressing the left/right arrow buttons in each numbered OUTPUT section on the handset.

Previous / next buttons

When using the remote control locally, i.e. pointed directly at the matrix, the previous / next buttons are used to scroll between the input sources connected to the matrix for each individual output display. So for example, using the previous / next buttons for 1 allows you to select the source to be set to display 1 manually.
See below:

Matrix System Code Switch

The MX0606/0808-PP features an intuitive IR 'Call Back' system of control through which the matrix is able to distinguish where the remote handset is being used to change INPUTS and OUTPUTS and is able to switch accordingly depending on the user's location.



As such, the function of the handset buttons and operation differs depending on where the handset is being used.

In the event that two MX0606/0808-PP units are used within close proximity, the matrix is capable of switching between two distinct IR System Codes to allow control of either matrix individually via the same hand-set.

Changing the System Code of the handset to that assigned to a specific matrix will allow IR commands to be delivered to only that unit.

The default system setting is 0x00 to control one matrix, but pressing the SYSTEM CODE button on the handset THREE TIMES rapidly activates the alternative Matrix SYSTEM CODE 0x4e, allowing independent control of a second unit. Pressing the button three times again to reverts back to default 0x00 setting.

NOTE Changing the System Code is only necessary if you are using two units within close range of the IR signal. If using in different parts of the same room it is likely that you will not need to change the setting.

HINT If your remote control is not working, before changing the battery, try changing the System Code on the handset in case it has accidentally been switched to an alternative matrix control mode

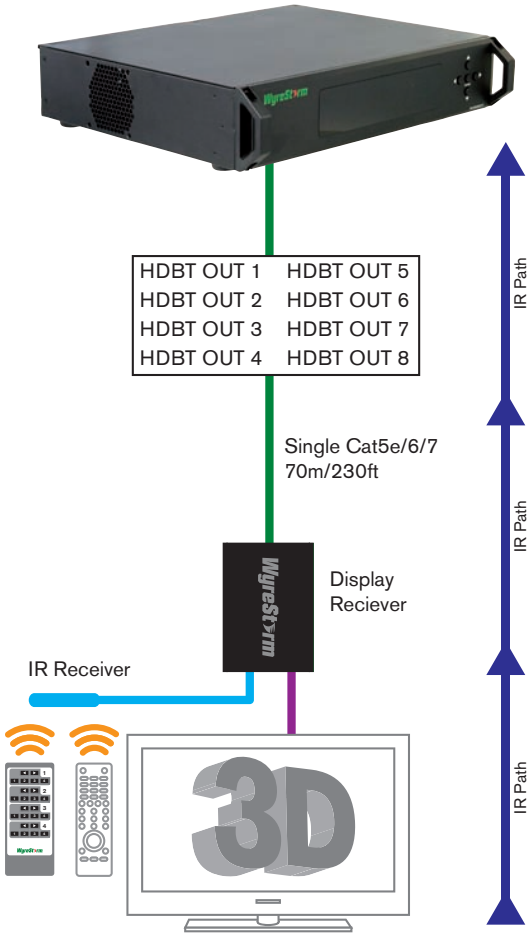
Remote Control at the Display End (Remote IR)

When controlling the matrix remotely from the display side, the matrix automatically detects which particular output location the user is at and only allows the selection of sources 1-8 for that particular location using the button - the right hand button will be deactivated.

For example, if you are in the Master Bedroom with a display connected to output 3 of the matrix, the output zone is automatically detected so options 1-8 will correspond to sources 1-8 on the matrix. Press buttons 1-8 to scroll through your options as you would channels on a regular TV remote.

IR Call-back of Matrix and Source Devices

The Wyrestorm MX0606/0808-PP is not only a switcher and extender of multiple HDMI signals to multiple HDMI receivers located remotely, it also passes IR control signals through the IR call-back system to the matrix and HDMI sources for full, independent control of all connected inputs from output locations.



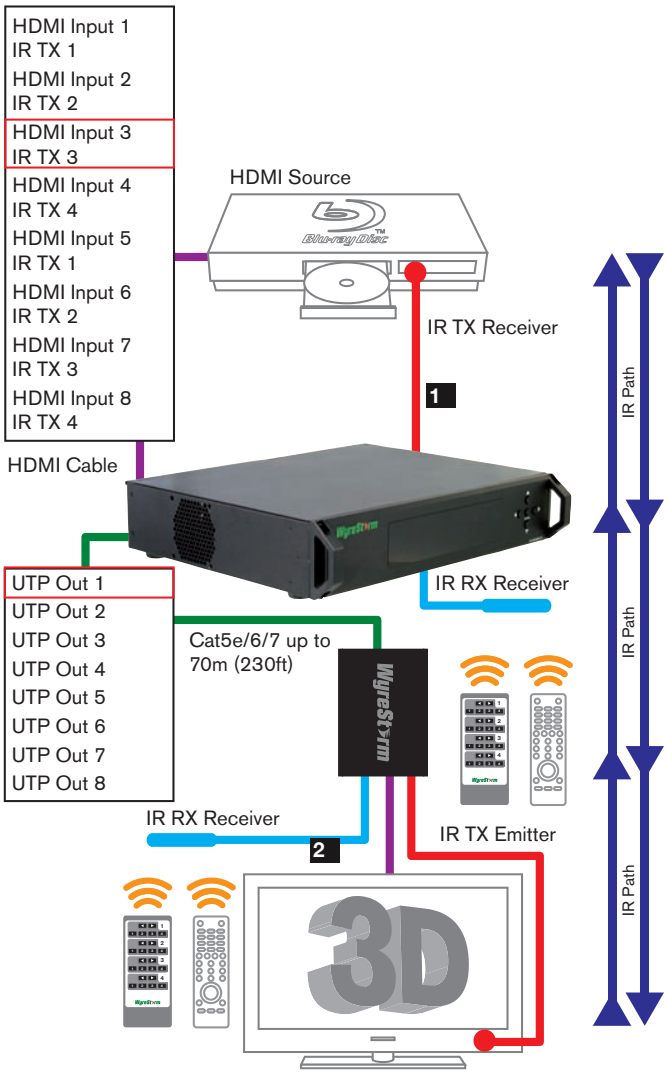
Two-way IR Call-back Between Matrix, Sources and Displays from Multiple Locations

A key feature on our HDBaseT Lite Matrix range is discrete IR control of the matrix, sources and displays from any location – so inputs at the matrix end can be controlled at a display location and displays can be controlled at the matrix location.

This is accomplished by placing a series of IR Emitters on devices to control and Receivers at all locations you wish to control from to enable the IR signal to travel both ways via the single Cat5e/6/7 cable.

The sequence of IR TX numbers correspond to the HDMI INPUTS so when an OUTPUT selects a certain INPUT, the CALL-BACK IR signal of that RJ45 port selects the relevant IR TX port to OUTPUT the control signal.

Example: If OUTPUT 1 selects INPUT 3, the CALL-BACK IR signal of that RJ45 OUTPUT links INPUT 3 with IR TX3 for the signal to be combined and communicated for that input to be controlled remotely.

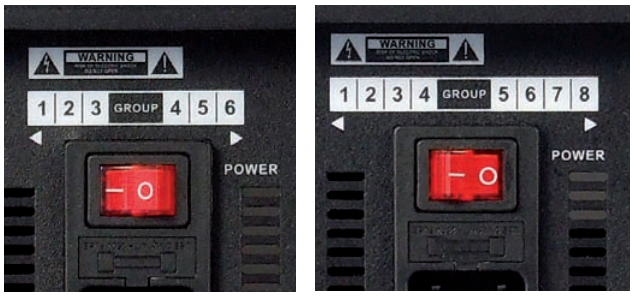


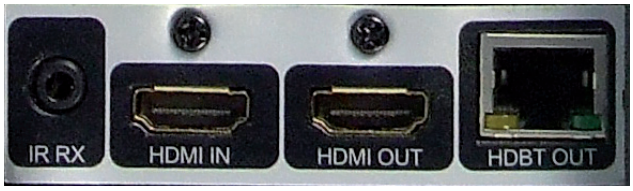
1 **At Matrix end:** Insert the 3.5mm jacks of the IR TX Emitters included with the unit into the IR TX Emitter ports at the rear of the matrix according to input. The IR signal is added to the HDMI of the input device so, for example, if the user is watching Blu-ray on input 3, the IR signal will be directed through the IR TX3 socket to control the device.

As each IR TX port is allocated to an individual HDMI input port, if the user is unable to establish IR control of the device, care should be taken to check that, firstly, the IR emitter and HDMI input ports match (Input 1-TX1, Input 2-TX2 etc.) with plugs secured in correct ports, and secondly, that the IR TX emitter sensors are firmly attached directly to the front of inputs and covering infrared sensor windows of the source devices.

Some later adjustment may be needed to the location of the sensor to achieve the best performance results - sometimes moving the sensor to different areas on the source can improve IR performance.

NOTE Infrared receiving areas of devices can be located by shining a flashlight onto the front of the device – the sensor should be able to be seen through the plastic as a small, round object inside.





As with the IR TX, the IR RX ports are allocated to their respective UTP OUTPUT ports (Output1-RX1, Output2-RX2) with the IR signal converted to HDMI and carried along the single Cat5e/6/7 cable. Insert 3.5mm jacks of IR RX receivers into RX ports, making sure the receivers themselves are placed in clear view at the to receive an infrared signal from the remote handset used control the display outputs.

NOTE The Call-back function can be turned on/off by accessing the Wyrestorm COMCTL software. See ADVANCED OPERATION

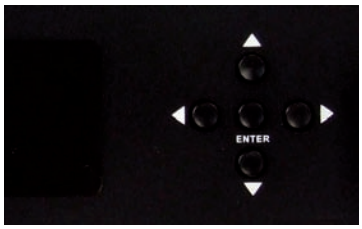
2 At display end: Insert the IR RX Receiver jack into the IR RX port of the display receiver balun, with the receivers themselves placed in clear view on or near the displays to receive an infrared signal from the remote handset used to control inputs.

Insert the IR TX Emitter jack into the IR TX port of the display receiver balun, ensuring that the emitter sensor is securely attached to infrared sensor window of the display.

Follow the same connection and positioning for all baluns/ displays connected to the matrix.

If all IR TX Emitters and IR RX Receivers are positioned and connected correctly with sources, displays and display receivers fully powered and the matrix set to IR call-back enabled and IR TX Switch mode activated, two-way IR will now be possible.

IR Extender Control



Should local control of the Matrix via the front panel IR sensor be an issue, for example if the sensor is obstructed or the unit is installed in a closed area out of infrared line of sight, the IR RX Receiver included with the matrix can be inserted into

NOTE Misplaced or poorly secured IR Emitters and Receivers may result in intermittent IR control signals passed to and from the matrix. Check your placement and adjust if necessary.

11. Advanced Remote Control

IR Call Back and Third Party Control systems

Please note: Due to the differing method of control based on location, if you are using a third party control system, learning the control from the IR is NOT recommended as control will be limited to scrolling up/down between inputs. For discrete source selection you will need to import discrete hex codes for control systems. These can be obtained through the Wyrestorm website, by contacting our technical support or you can input them manually.

For reference: The IR is NEC and possesses a carrier wave of 38KHz with a system code of 0x00

OUTPUT CHANNEL	INPUT SELECT	
1	0x1d	0x0d
2	0x1b	0x15
3	0x12	0x08
4	0x55	0x4a
5	0x06	0x03
6	0x07	0x02
7	0x44	0x51
8	0x1e	0x1a

Output1 source select key code: 0x80 0x81 0x82 0x83 0x84 0x85 0x86 0x87
Output2 source select key code: 0x90 0x91 0x92 0x93 0x94 0x95 0x96 0x97
Output3 source select key code: 0xa0 0xa1 0xa2 0xa3 0xa4 0xa5 0xa6 0xa7
Output4 source select key code: 0xb0 0xb1 0xb2 0xb3 0xb4 0xb5 0xb6 0xb7
Output5 source select key code: 0xc0 0xc1 0xc2 0xc3 0xc4 0xc5 0xc6 0xc7
Output6 source select key code: 0xd0 0xd1 0xd2 0xd3 0xd4 0xd5 0xd6 0xd7
Output7 source select key code: 0xe0 0xe1 0xe2 0xe3 0xe4 0xe5 0xe6 0xe7
Output8 source select key code: 0xf0 0xf1 0xf2 0xf3 0xf4 0xf5 0xf6 0xf7

12. Advanced Operation

Controlling the MX0606/0808-PP using RS232 and COMCTL PC Software

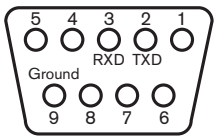
Typically, unless alternative methods of controlling the matrix are chosen or problems with device communication through the matrix encountered, basic operation is all that is required to operate your MX0606/0808-PP. However, the following information on advanced operation will detail how the matrix system can be configured and for advanced control and settings can be altered or data manually input should such problems arise, as well as configuring the system for third party control.

RS232 Remote Control

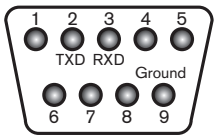
Control of the matrix is possible through RS232 using third party control systems or the dedicated Wyrestorm COM CTL software included with your purchase (also downloadable from www.wyrestorm.com).

RS232 Setting

Should third party control be required, please see below for control system configuration and hex code input. The RS232 connection on the matrix is female DB9. Users can use USB-RS232 cable (supplied) for connection to a PC or a straight through male-male (not supplied) for connection to a control interface.



Female connector - 9 holes



Male connector - **9 Pins**

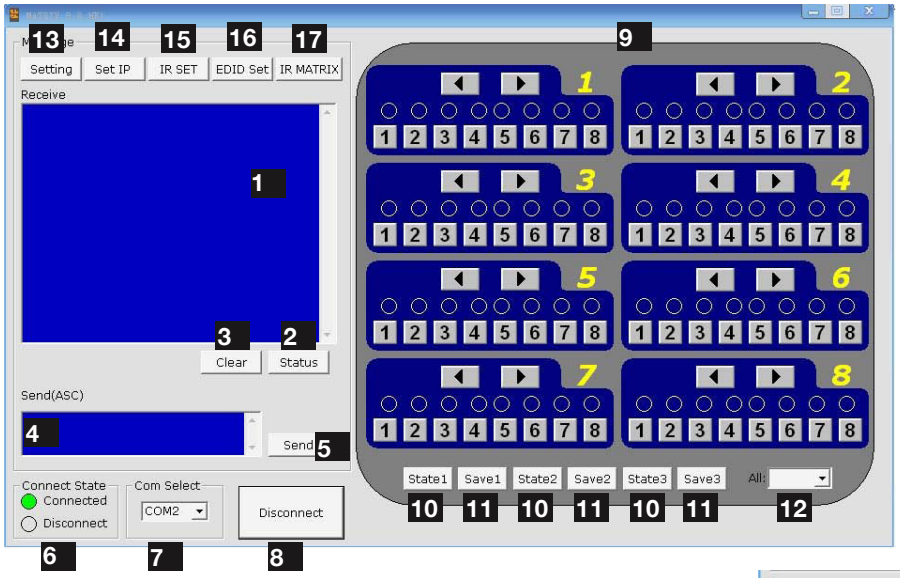
RXD Receive serial data from PC
TXD Transmit serial data to PC

Com Port Setting

Baud rate	9600bps
Data bits	8bits
Parity	None
Stop bits	1
Flow control	None

COM CTL

After fully connecting all inputs and outputs to the matrix and installing the software, on opening the program the control window will display information from the matrix, such as messages received from the switch such as input/output details, firmware version and control commands/ASCII codes that allow the system to be controlled remotely, as well as buttons used to navigate the screen.



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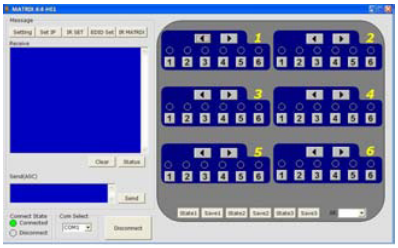
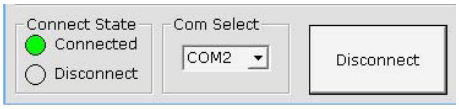




1 Receive Message Window
2 Matrix Status
3 Message Clear
4 Send Message Window
5 Send Message Button
6 Com Port Connect State
7 Com Port Select
8 Connect/Disconnect from Matrix
9 Input/Output Switch area
10 Select Presaved Output State 1, 2, or 3
11 Save Current Output State 1, 2, 3
12 Select all Inputs/Outputs
13 Settings
14 Set IP access
15 IR Set Area
16 EDID Settings
17 IR Matrix

1 Receive Message Window – displays messages received from the matrix, such as input/output settings and command selections.
You can view the current condition of all input/output ports by pressing the 2 Status button.

Pressing 3 Clear will delete the previous message received in the window.

4 Send Message Window - Input your serial commands for the matrix in the **Send Message Window** - such as instructions for outputs or to enter update mode – and click the 5 **Send** button to deliver the message to the Matrix. The control command uses ASCII.

NOTE To see the firmware version currently used in the system – power off and repower while the matrix is connected to COM CTL. The firmware version and creation date will be displayed together with the normal output state of the matrix.

6 Com Connect State - Shows if the matrix is **connected** or **disconnected** to the **Com Port** and communication is enabled. Selection between ports is available by pressing the **Com Port Select** button.

7 When **connected**, the only option will be to **Disconnect** and vice versa.
Press **8** to connect/disconnect the matrix from the software control.

● **Connected** to ENABLE matrix communication

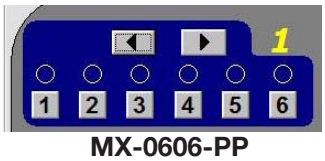
● **Disconnected** to DISABLE matrix communication

7 Com Select 8 Connect/Disconnect

Click the Com Select dropdown to see all Com ports available. Select your chosen Com port number and press the CONNECT button. You will notice the button change to show 'disconnect' and CONNECT STATE change to green for 'connected'. Pressing the button again will disconnect the Com port and the CONNECT state will show red.

NOTE The Com Select drop box offers options of Com Ports to connect to – COM 1-10

9 Input/Output Switch - Switches connected inputs per output. Operation as with remote control handset.



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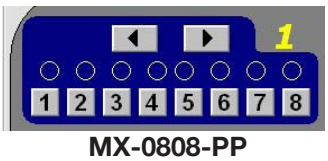

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A large yellow number denotes each OUTPUT section with INPUTS chosen by either clicking the left/right arrow buttons to scroll through inputs numerically or by pressing the input numbers below.
The INPUT/OUTPUT switch allows output port selection (display) and Input port select (source) buttons for specific combinations of displays and sources within the matrix. You can save your selections by allocating your choices to Save buttons 1-3 **11** and recall previously saved output/ input configurations by pressing State 1-3 **10** buttons.

Firmware Update

To update the system firmware, enter the following code into the **Send Message Window** **4** ensuring to include one space between each section of the code.

Code: **ICP BE 7C 5F**

Press **Enter**, then **Send Message** **5** to put the matrix into firmware update mode.

Press the **Disconnect** **8** button and run the firmware. When the firmware has finished updating, press the same **8** button again to Connect and power-cyle the matrix (turn off and on).

Updates are now active and the MX0606/0808-PP firmware is now updated.

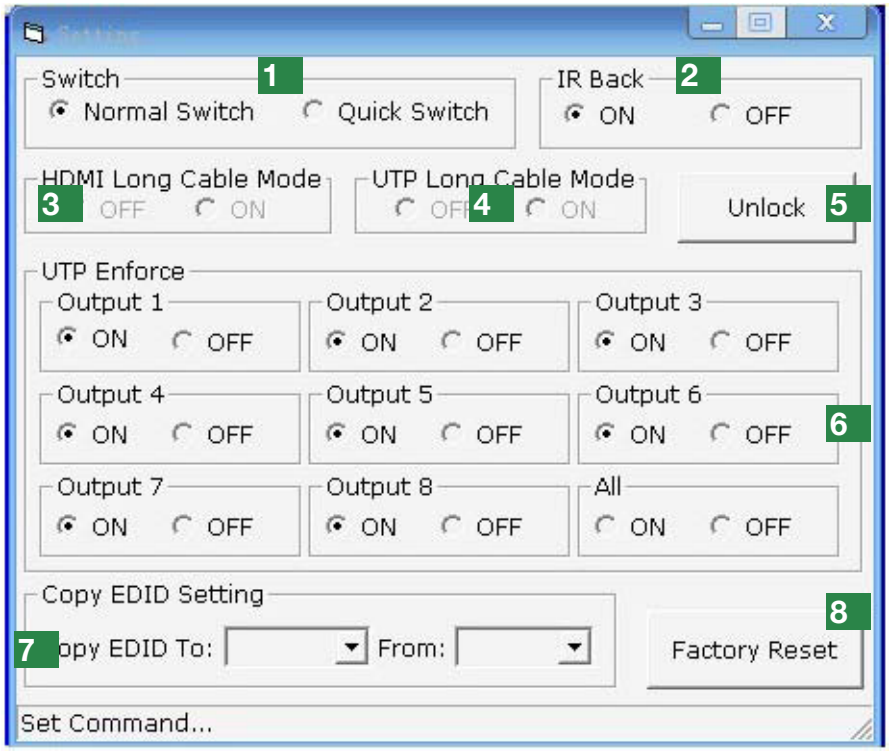
Control Command Format

Should users wish to write their own command software for controlling the matrix remotely, see information on data format and baud rate settings:

COM PORT Setting

Baud rate	9600bps
Data bits	8bits
Parity	None
Stop bits	1
Flow control	None

13 **Setting** – Enter the Settings menu area to make alternations to the matrix, IR, EDID etc. See below for details.



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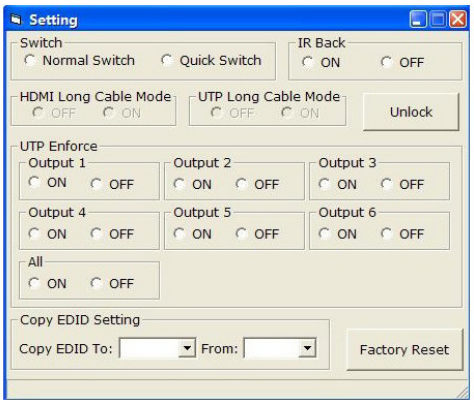


1 **SWITCH** – Quick Switch option is an alternative method of switching between sources that is faster than in Normal mode, resulting in less delay between input selection. Although faster, the means of switching has been found to be incompatible with some displays. As a result we recommend Normal Switch as the default setting due to reliability and compatibility with outputs.

2 **IR CALL-BACK** – This toggles the IR Call-Back function on and off. The default setting is ON

3 **HDMI LONG CABLE MODE** – If devices connected using HDMI are reaching the upper end of the HDMI transmission limit (15m / 49ft) and signal interference or loss is experienced, switching Long Cable Mode to ON

will instruct matrix to attempt to aid transmission of the HDMI signal.
This setting is locked by default.

4 **UTP LONG CABLE MODE** – As with HDMI Long Cable Mode, if signal transmission quality is affected by a Cat5e/6/7 cable run reaching the maximum distance capacity (70m / 230ft using RX-1UTP-IR-70), switching Long Cable Mode to ON will instruct the matrix to attempt to improve transmission over the UTP in an effort to improve signal quality.
This mode should NOT be used as a general means to lengthen transmission distance – we recommend installers be aware of product specifications and use equipment best suiting the requirements of the project.
This setting is locked by default.

5 **Lock/Unlock** – To gain access to Long Cable Mode settings, press 'unlock' and enter

'877379'

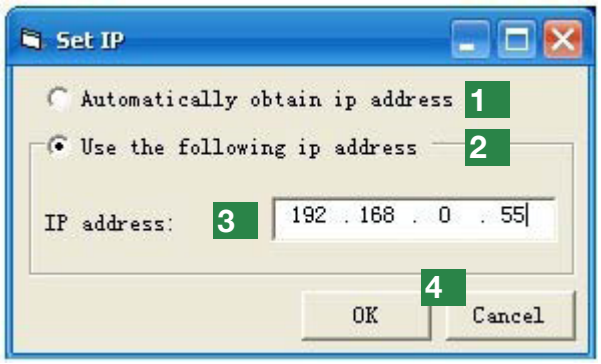
NOTE This password cannot be changed

6 **UTP ENFORCE** – used to encourage EDID/HDCP communication between INPUT and OUTPUT devices. Switching output settings to ON instructs the matrix to output a signal regardless of device EDID/HDCP or hotplug data – such information is circumvented to force communication in the event of problems between sync devices. Default setting is OFF.
If difficulties are encountered receiving a signal from a particular source to a display, change UTP ENFORCE setting to ON for that particular OUTPUT.
Although this setting can be used to fix EDID communication problems, we recommend this setting for system debugging by the installer only, and not for operation by the end user.

7 **EDID COPY SETTING** – Copies EDID information directly from one device to another to aid transmission if communication problems arise between incompatible devices. Use the dropdown boxes to select which INPUT/OUTPUT devices to copy from and where to be copied to.

8 **FACTORY RESET** – restores all matrix settings to factory default. This action cannot not be reversed.

14 **Set IP** The matrix can also be controlled over **LAN.** Selecting the **Set IP** **14** button in the main **COMCTL** screen allows access to IP functions that obtains and stores IP address information necessary for LAN control.



Clicking opens a pop-up window in which you can choose to let the system automatically detect your IP address, with the result displayed in the box below. Alternatively, if the system cannot detect an IP address, select 'Use the following IP Address' and you can add manually.

1 Selection enables the IP address to be obtained automatically, with the result appearing in the white box below.

2 Should no address appear or if the system is unable to detect an IP address, select option **3** to manually input the IP address.

4 Click OK to complete the process or Cancel to exit and return to the main screen.

NOTE To access matrix control over LAN, enter the IP address of the matrix into your internet browser and you will be directed to the web control screen.

For full information on LAN control, see NETCTL section of this manual.

15 IR SET - The MX0606/0808-PP supports third party control systems and learning handsets. Pressing the IR SET button in the COM CTL main screen allows access for users to enter new IR code or modify existing code and assign it to inputs and outputs so control using third party systems is possible.
To input or amend IR code, follow the steps below:

1- Press Read Code to instruct COM CTL to read the IR code from the control system. The resulting data will appear in the central section.

2- Use your cursor to click into the box containing the IR data you wish to change.

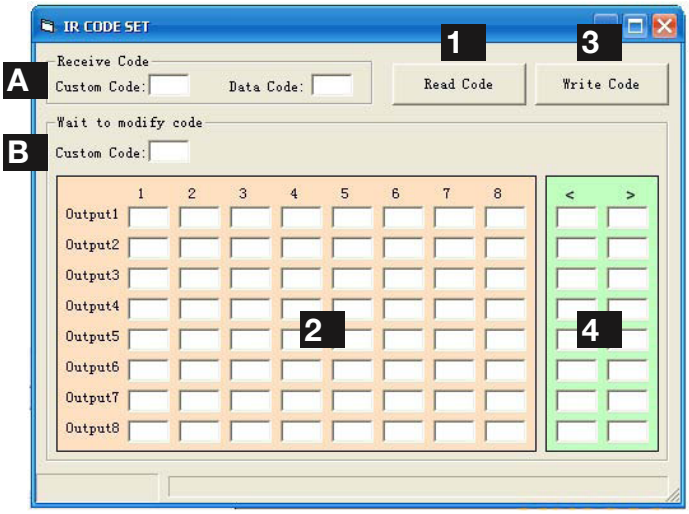
3- With the remote control pointing at the device, press the handset button you wish to transfer IR Code from and the code will appear in your selected IR Code box.

4- To confirm this change, click

to save the changes to the system.

5- Hit

to close the IR Code Setting window and the device will enter **NORMAL MODE**



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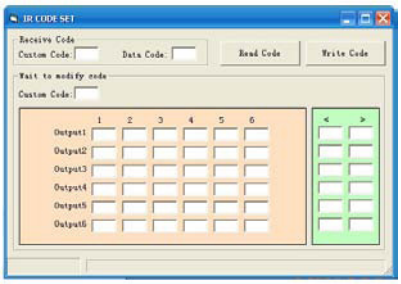

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A Receives the specific IR code used to operate the Matrix via remote control. Can contain a **custom** or **data code.** Third party remote control codes are also shown.

B IR code can also be input manually in the event it is unreadable.

1 Press to automatically **read** the current IR code from the device.

1 The resulting code appears in the wait to modify code section where output and input code can be edited if necessary (for example if using third party control systems

NOTE Modified code can be saved as a Custom code and read directly from a library of stored custom codes.

All codes should be different.

3 Write the code from the Modify section to the device to authorise remote control usage.

NOTE All input/output boxes should contain code. If inputting manually, make sure there is no repetition of code.

Modify Section - Control Commands and Code

Code input in the **Input/Output** section **2** and **Control code** section **4** must follow a strict format for the command to be understood by the system.

For reference - the command format to be input is:
Type **“Cir”** - followed by a **“space”** - then the **“code number”** – and hit the **”enter”** key.

For example Cir 39 + ”enter” (equals a hex code of 63 69 72 20 33 39 0D 0A)

Such a command will tell the matrix to select the next **Input source** for **Output 4**

MX0606/0808-PP Control Code

Output 1	<”08”	“09”>					
1 ”00”	2 ”01”	3 ”02”	4 ”03”	5 ”04”	6 ”05”	7 ”06”	8 ”07”
Output 2	<”18”	“19”>					
1 ”10”	2 ”11”	3 ”12”	4 ”13”	5 ”14”	6 ”15”	7 ”16”	8 ”07”
Output 3	<”28”	“29”>					
1 ”20”	2 ”21”	3 ”22”	4 ”23”	5 ”24”	6 ”25”	7 ”26”	8 ”27”
Output 4	<”38”	“39”>					
1 ”30”	2 ”31”	3 ”32”	4 ”33”	5 ”34”	6 ”35”	7 ”36”	8 ”37”
Output 5	<”48”	“49”>					
1 ”40”	2 ”41”	3 ”42”	4 ”43”	5 ”44”	6 ”45”	7 ”46”	8 ”47”
Output 6	<”58”	“59”>					
1 ”50”	2 ”51”	3 ”52”	4 ”53”	5 ”54”	6 ”55”	7 ”56”	8 ”57”
Output 7	<”68”	“69”>					
1 ”60”	2 ”61”	3 ”62”	4 ”63”	5 ”64”	6 ”65”	7 ”66”	8 ”67”
Output 8	<”78”	“79”>					
1 ”70”	2 ”71”	3 ”72”	4 ”73”	5 ”74”	6 ”75”	7 ”76”	8 ”77”

If the control command is sent successfully, the current **output state** selected will feedback to show the **input port** selected. The return status format is as follows:

S	X1	X2	'\r'	'\n'

This translates as:

"S"	**Output port**	**Input port**
1st byte	2nd byte	3rd byte

For example: if **Cir 44 "enter"** is sent successfully to the matrix, it will feedback **"s55"** – meaning **Output 5** has selected **Input 5**.

Read Status Command

The command length of the read status is 4 bytes. Type "bc" - followed by a **"space"** - and hit the **"enter"** key.

For example: **bc + "enter"**

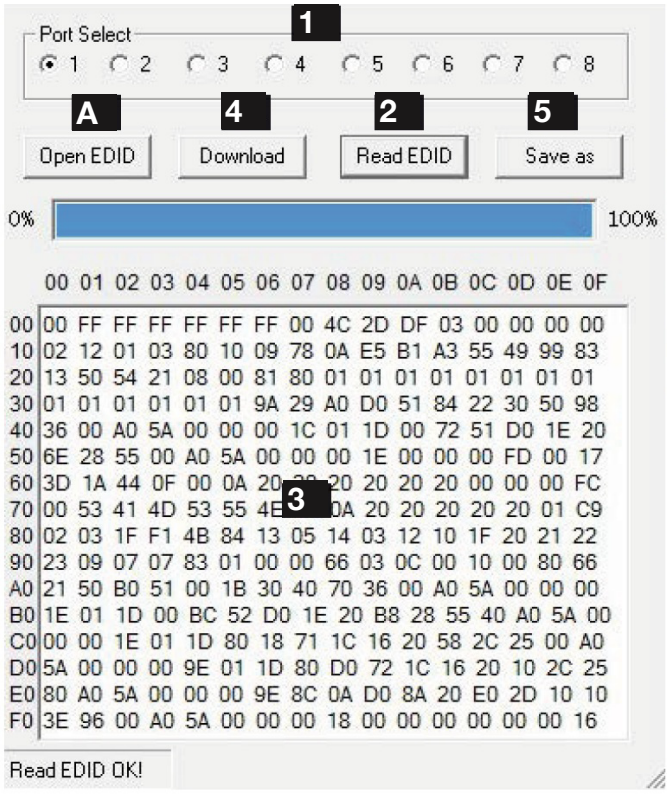
NOTE Such a command will tell the matrix to feedback the current status of all outputs. See below for status format (16 bytes)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
'\r'	'\n'	s	X1	X2	s	X3	X4	s	X5	X6	s	X7	X8	'\r'	'\n'

Each of the X1, X2, X3, X4, X5, X6, X7, X8 signifies the related input as chosen by a **specific output**: X1 = Output1, X2 = Output 2 etc. For example, a status reading of **"\r\ns12s22s53s45\r\n"** signifies the following matrix settings.

Output 1	Output 2	Output 3	Output 4	Output 5	Output 6	Output 7	Output 8
↓	↓	↓	↓	↓	↓	↓	↓
Input 1	Intput 2	Intput 3	Intput 4	Intput 5	Intput 6	Intput 7	Intput 8

3 EDID Set



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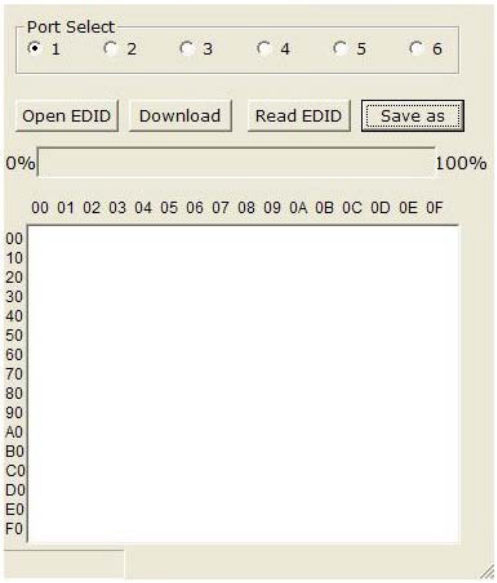

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Pressing the **EDID SET** button **16** in the **COM CTL** main screen allows user access to EDID settings that can be read, saved and recalled.

1 Select your **OUTPUT** port (the output port is always the first to be selected by default on entering **EDID** set)

2 Press **"Read EDID"** to read **EDID** from the selected output port. The status bar shows the progress of the **EDID** read.

3 Once completed, the **EDID** appears here.

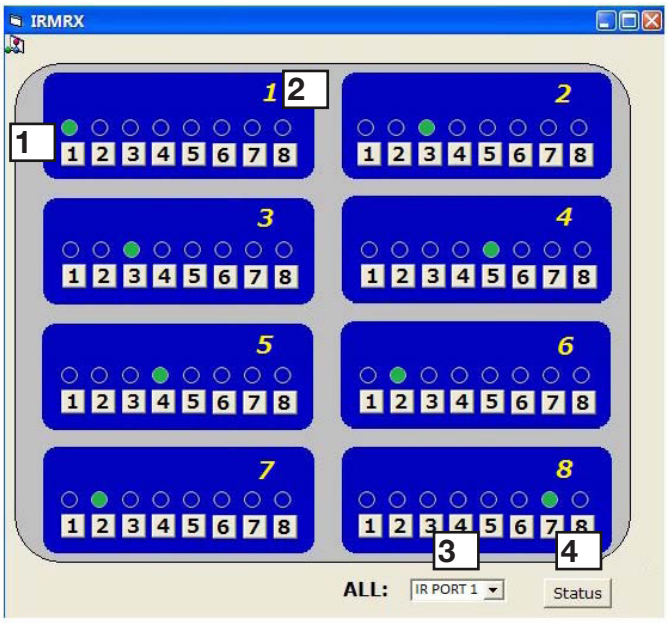
4 Then select your **INPUT** port and press **"Download"** to send the **EDID** to your input

5 Press **"Save As"** to save the EDID as a **'BIN file'**

A Alternatively, you can open EDID from here if you have previously saved output EDID in bin format. Recommended if you frequently need to use specific output EDID, from a particular display, for example

17 **IR Matrix** – manually connects INPUT IR RX ports to Output Display Receiver IR TX ports – this function is available when the matrix is connected to display receiver via the HDBT OUT Cat5e/6/7 port.

IR Matrix allows manual selection of source device IR RX ports **1** by Display Receiver IR TX ports **2**
The dropdown menu **3** allows ALL IR TX ports to be set to ONE specific INPUT device IR RX port with the current settings of the IR Matrix viewable by pressing the STATUS button **4**



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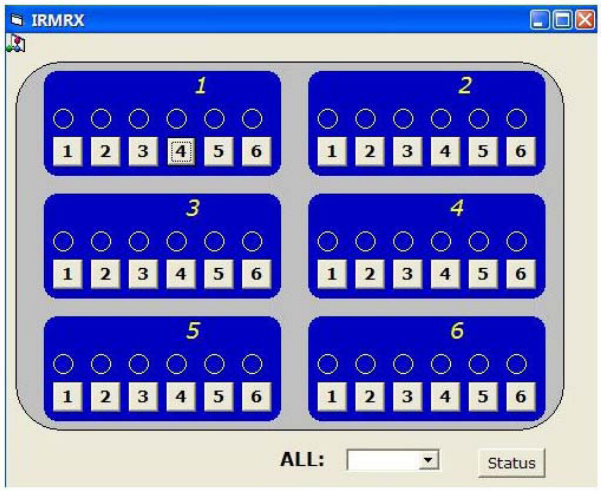

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NETCTL - LAN Control

The matrix can also be controlled via LAN over a network/ web browser using the supplied Wyrestorm NET CTL software or LAN protocols from third party companies, such as **Control 4**.

ATTENTION Use a 'straight through' ethernet cable for switch/router connection and a 'cross-over' cable for connection to a PC. Using the incorrect cable will not damage your equipment, but it may result in poor/no connection.

Make sure that your LAN cable is correctly terminated and firmly connected to ports before running the software.

On initial opening, the program will first create a NETCTL. TXT file that will serve as a device backup for future use; including connection settings such as IP address and MAC address of the **MX0606/0808-PP**, as well as its name if you decide to change the name of your matrix (see **Device Name** section below).

On subsequent openings, NETCTL will then search the Matrix for the saved data required for connection.

If using for the first time, the program will automatically detect the IP address being used, with the result displayed in the white area beneath.

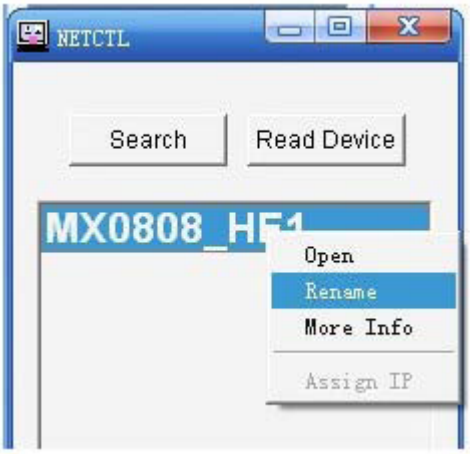
Should no result appear or if the system is unable to detect an IP address automatically, press the

button to locate.

When the IP address appears, click

to attach the IP address to the system and the IP address will change to a default factory serial number MX0606-PP or MX0606_HE1 / MX0808-PP or MX0808_HE1

Device Name

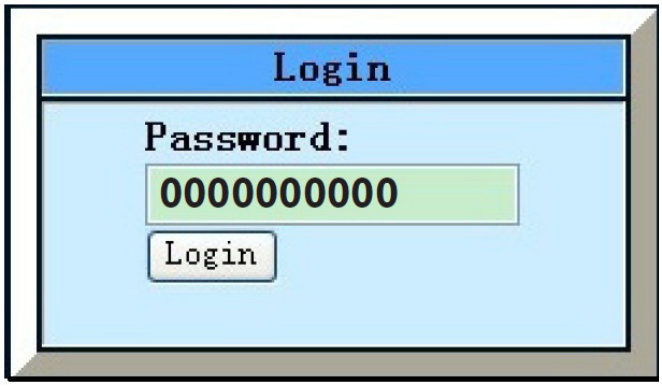


Should you wish to change the name of your matrix from the factory default, just right click on the serial number and select **'rename'** from the dropdown menu. Input the new name and press
OK.
In some systems these settings can be accessed through the included **Netfinder.exe** application. Click

Search

to locate the device IP address.

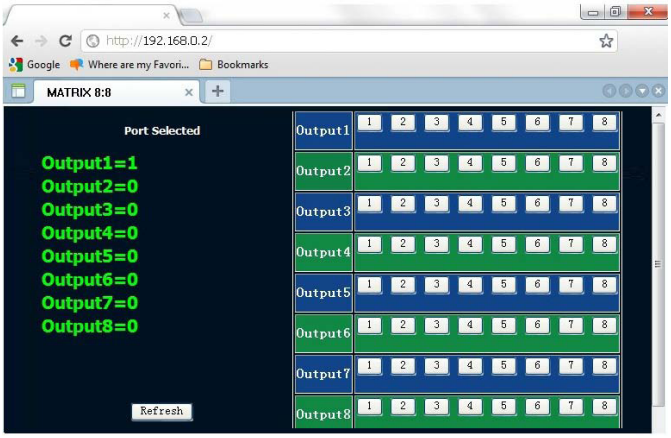
On either system, when the device name/default factory serial number appears, double click (or right click and OPEN) and you will be directed to a web login page in your internet browser.



Enter the default password of ten zeros **'0000000000'** and click

Login

to take you to the **NETCTL matrix controller screen.**



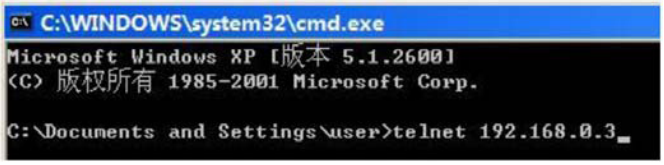
The layout of NET CTL includes an upper section to allocate input sources to output with the selection displayed on the left hand side.

Operation is the same as COM CTL – Inputs buttons 1-4 can be clicked to be selected per Output port.

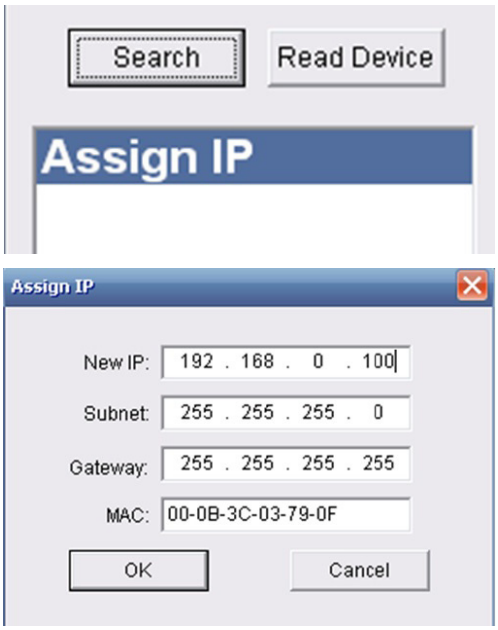
Press the button to update your chosen matrix settings into the left hand display and your selection to take effect.

TELNET Control

For TELNET Control, the matrix IP address is as follows:



Once activated, the matrix can be controlled in the Control Command format.



Click

OK

to assign the new IP address to the system and you will return to the previous screen or

Cancel

to return without changes taking effect.

Search

Now click for the Matrix to detect the new IP address, which will appear in the dialog box. Finally, click

Read Device

to confirm IP settings

ATTENTION This 'Assign IP' process differs from the COM CTL 'IP Set' function.

'Set IP' in COMCTL saves/reads the IP address in flash and sets it as static IP. 'Assign IP' is only used when the system fails to obtain an IP address automatically and is NOT saved in flash.

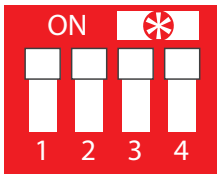
EDID DIP Switch settings

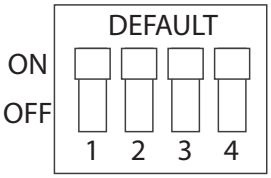
Distribution of HD signals through the matrix requires mutual communication or 'handshake' between source and display. If there is any disparity between the two, successful transmission becomes problematic.

This matrix comes equipped with an EDID DIP switch for manual adjustment of matrix settings to encourage communication between INPUT and OUTPUT devices. If installation compatibility issues arise, check the settings on your connected devices and adjust the DIP settings as required.

ATTENTION Changes to the DIP switch settings should be made with the matrix OFF, to guard against electrostatic build up that may damage your system. DO NOT HOTSWAP your cables when changing DIP SETTINGS.

ALL changes to the DIP settings become effective upon powering ON the matrix.





Shaded DIP setting denotes inactive switch so position can be set to up or down

(Default factory setting)
EDID Copy from Output display to Input port (Force Signal Output mode)

To copy the EDID from an HDMI OUTPUT display to a specific INPUT port, first set the DIP switch to this position. Then select the INPUT by pressing and holding the chosen OUTPUT SELECT button for 3 seconds for the EDID to be copied from the DISPLAY to the INPUT port.

For example: If OUTPUT 3 is selected for INPUT 1, the EDID for OUTPUT 3 will be copied to INPUT 1 – this is achieved by the system setting HDMI OUTPUT as a higher priority than UTP OUTPUT.

If EDID copy is not successfully completed, the INPUT Port EDID will remain the unchanged.

RESETTING TO FACTORY DEFAULT:

To reset EDID for all ports, simply set the DIP switch to the above position when the matrix is powered OFF. On powering ON, all ports will revert to the above factory default and DIP switches can be adjusted as necessary.

AVR 7.1 Audio EDID COPY to Blu-ray source (AV Receiver copy)

For users who wish to copy EDID from an AV Receiver with 7.1channel audio to a specific input port containing a Blu-ray player, follow a variation on the instructions above:

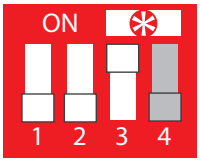
1 Set the DIP switch to the above position with the matrix in the OFF position.

2 Connect the AVR to your desired OUTPUT port on the matrix (for example, OUTPUT 2)

3 Power ON the matrix and select your INPUT your chosen SOURCE is connected to (for example, INPUT 3 – Blu-ray)

4 Press and hold the OUTPUT SELECT button for 3 seconds for the EDID data to be copied from OUTPUT 2 (AVR) to INPUT 3 (Blu-ray).

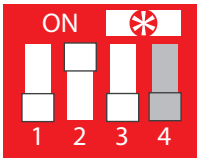
1080p 3D Video / Stereo Audio (using embedded M-series EDID)



Setting the DIP switch to this position will instruct the matrix to use embedded 1080p 3D compatible video and Stereo audio EDID to encourage communication between the matrix and 3D sources/3D displays if handshake problems are encountered.

After setting the DIP switch, reconnect and turn on for the changes to take effect.

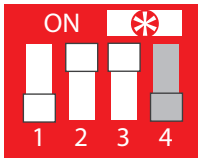
1080p Stereo (using embedded A-series EDID)



The matrix will use embedded 1080p video and stereo audio EDID in this DIP setting.

After setting the DIP switch, reconnect and turn on for EDID settings to take effect.

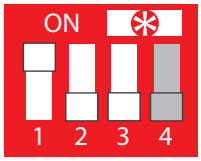
1080i Stereo (using embedded L-series EDID)



In instances where a connected display is unable to achieve 1080p resolution (such as using older or cheaper models), this DIP setting will instruct the matrix to use embedded 1080i video and stereo audio EDID to output a signal.

After setting the DIP switch, reconnect and turn on for EDID settings to take effect.

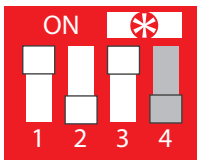
1080p 5.1ch Audio (using embedded D-series EDID)



When set to this DIP position the matrix will use embedded 1080p video with 5.1ch Audio EDID.

After setting the DIP switch, reconnect and turn on for EDID settings to take effect.

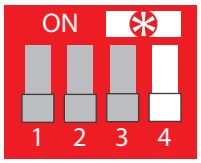
1080p 7.1ch Audio (using embedded G-series EDID)



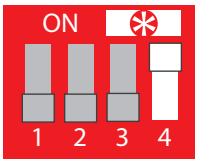
When set to this DIP position the matrix When set to this DIP position the matrix will use embedded 1080p video with 7.1ch Audio EDID.

After setting the DIP switch, reconnect and turn on for EDID settings to take effect.

Normal Output

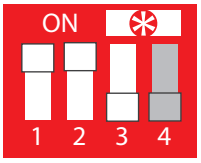


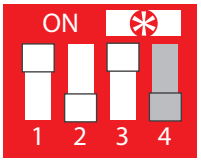
Force Output



Instructs the Matrix to Output a signal regardless of communication between display and source compatibility. This setting may be used to further encourage compatibility between devices if other DIP settings prove unsuccessful in establishing communication.

Remaining settings no function (reserved for future updates)





12. Troubleshooting

Generally, the majority of HD distribution installation issues are either caused by minor connection errors, communication problems between devices, or when the transmission of high signal bandwidth is attempted using insufficient cable. Should you encounter any technical difficulties when installing and configuring the matrix, we are confident solutions can be found by working through the following troubleshooting checklist before seeking alternative technical support.

No Picture or poor quality picture

1) Power – are your HDBT transmitter or display receiver baluns powered both ends? Transmitters and receivers should have their own power source i.e. the 5v power adaptors included with your baluns.

Note: Receivers do not need to be independently powered if part of an HDBT extender set – there is a two core power link between transmitter and receiver that powers the receiver at the display end.

Are all sources definitely powered and firmly connected?

2) If possible, always use test equipment prior to installation and to troubleshoot any problems.

Test Monitor
Part Number TTMONITOR

Signal Generator
Part Number TTSIgnal

3) Distance – Is your cable too long for the signal to be transmitted effectively? HDBT Lite allows transmission of 1080p up to 70m (229ft) so make sure you cable distance matches your requirements and is well within the maximum transmission distance of the signal.
Note: If you are approaching the limits of the transmission capabilities, you will need to use a Wyrestorm Extender set for the signal to transmit effectively.

4) Cable joins? Joins in your cable run can impact on signal strength, resulting in reduced transmission that may manifest itself in poor picture quality or a complete lack of picture
.

5) Signal Reduction – Are you using stranded patch leads as interconnects between patch panels or wall outlets? Such use reduces signal strength – we recommend solid core straight through connections to be used wherever possible.

6) Resolution – If you reduce the resolution of the source, do you get a picture? If so, this suggests a discrepancy between source and display resolution or a bandwidth capacity issue with your cable. Check that your inputs and outputs share the same resolution and that the signal is being successfully transmitted along your cable run.

7) Correct connection – It may seem obvious but double check all UTP, HDMI, power and IR cables are connected to the correct ports.
Note: Even a fraction off can be the difference between a perfect picture and a blank screen. Double check all connections are firmly made in the correct ports.

9) Cable wired to 568B standard? Is your cable wired and terminated correctly and are those terminations connected to the correct ports?

10) Electrical interference – HDBT is less susceptible to interference compared to regular transmissions but the location of cables and devices should be considered - could any form of interference be generated? If so, attempt to remove the source of electrical interference or move the cable run to decrease the effects of the interference.

11) Do you get a picture if you connect the source directly to the display? If not then the problem could lie with the input or output device rather than the means of distribution i.e. the cable or matrix itself.

12) HDMI lead condition and quality – HDMI cables and connectors are delicate and can be damaged much

easier than component or coax cable. Furthermore, lead quality varies dramatically, particularly in lower price brackets. Swap your HDMI leads and check operation – damage to or quality of your leads could be the problem. If in doubt, swap them over. Always take care inserting and extracting your HDMI from matrix ports so as not to damage the connectors or ports.

13) Picture snow/HD 'noise' – represents a poorly established signal that may be caused by poor quality terminations or excessive cable lengths. Try swapping the display adaptors from a location you know is functioning properly or swapping the outputs of the matrix switch used.
If the problem remains on the same screen this may be caused by a connection problem between matrix and display – turn off all equipment and swap the signal carrying cables at both ends to ascertain if the cable or termination is at fault.

14) Blu-ray: Deep Colour – make sure Deep Colour is turned on in your Blu-ray settings and displays.

15) Blu-ray: Resolution – if a reduction of resolution to 720/1080i produces an image, cable issues such as interference, patch panels, wall outlets, stranded cable use or excessive cable length are likely restricting transmission of a full 1080p signal.

16) Blu-ray: 3D – is the equipment used 3D enabled/ compatible? Is a 3D disc being played in a 3D enabled Bluray player or through a compatible amplifier?

17) Colour distortion – a pink or green screen indicates an incompatibility between colour spacing formats – the commonly used RGB or YUV used by older displays. Some sources allow switching between RGB and YUV which may solve any colour problems. If not, try changing the HDMI cable between the source and the matrix to rule out defective cabling.

Audio is transmitted within the video signal – there is no separate audio track – so generally a problem with sound will be accompanied by a problem with picture. However, if technical issues with audio are experienced, the cause is typically communication between sources, displays and/or AV receiver settings.

No sound or poor quality audio

1) If using an AV receiver, check your source input assignment – do you have specific speaker sets or zones enabled? Some AV receivers allow individual speaker selections assigned to specific zones in the set up so check the speakers used are fully connected to the amplifier and correctly assigned within the system set up.

Note: If you experience problems when an AV receiver is used, the cause is usually the settings of the AVR itself. Refer to the AVR manufacturer's guidelines on the correct settings to use for your requirements.

2) Consistency of audio output between devices – Is there any discrepancy between the audio output of the source, the audio or zonal settings of the AV receiver and the speaker configuration used needed for successful audio replication? If you are outputting 7.1, make sure all devices connected are also outputting 7.1

Note: Occasionally with some sources, the device settings allow the specification of audio output through a TV or an HDMI port. If using an AV receiver, check the HDMI output option is selected.

3) Do all the local sources work through the AV receiver?
Check the operation of each source individually.

Bandwidth

1) If using a graphics-based source (such as a PC/Mac/ media server), make sure the source resolution is set to a maximum of 1080p, 50Hz. Higher resolutions available for graphics-based systems require higher bandwidth that may affect transmission of signals as well as incompatibility with devices.

IR

1) Check you are using emitters at the IR TX transmitter end and receivers at the IR RX receiver end – are they connected to the correct ports on the matrix and display receiver.

2) Is the emitter correctly positioned on the source?
Fix the emitter directly over the infrared sensor of the source and attach using the adhesive backing.
Note: Locate the infrared source sensor by using a flashlight to find s small sensor within the facia of the source display. If necessary, secure the emitter over the sensor with a small amount of contact adhesive.

3) Is your remote powered and sending a signal?
Note: IR is invisible to the naked eye, so use a digital camera/ phone camera to check the remote signal – point the camera at the remote control when pressing a button. You should see the remote transmitter flashing to indicate

a signal being sent. Replace batteries if flashing is not seen on the digital camera screen.

4) IR dropout issues can be due to exterior influences emitting infrared radiation that can interrupt IR signals. Ensure emitters and receivers are away from the following causes of IR interference.

- **Direct sunlight**
- **Halogen lighting**
- **Plasma screens**

5) UTP Termination Issues - swap cables over at both transmitter and receiver ends to see if control is established. If so, a possible re-termination of the cable could remedy the problem.

6) Are you using Wyrestorm emitters and receivers? The use of third party products/magic eyes may not be compatible. Always use Wyrestorm components included with your purchase or check compatibility of third party control systems with your Wyrestorm dealer.

7) If problems persist, swap out the IR emitters and receivers to rule out faults with the units themselves. Use emitters you know are fully operational to test working condition.

8) Reactivate the IR callback function on your matrix and swap IR ports on the matrix to rule out a fault with the matrix or connection ports.

9) Should IR remain unresponsive, turn off and disconnect all cables from the matrix and reconnect zones one at a time to assess if one location in particular is the problem. If so, run new cables directly to the display – if this fixes the problem, it is likely that electromagnetic interference / damage to the cable somewhere along the run is causing the IR signal to drop out. Investigate and remove EM interference from the run or replace damaged UTP cable.

13. FAQ's

5e or 6?

While our equipment is tested and graded to Cat 5e cable standard; tests have shown that better results are achieved when using Cat6 cable. The lower gauge, thicker copper cores ensure better signal transfer. Newly installed cabling should always conform to Part P Regulation and BS 7671 (17th Edition), and should be terminated to 568B standard

Can I use a single Cat 5e cable?

Although conventional transmission is considered to be two Cat 5e cables, it is possible to send the signal down a single cable if necessary. All of our pro-matrix switches and UTP splitters support single UTP mode, however in this mode IR control of sources and matrix switching is not possible. However using HDBaseT transmission; all of the twin cable features are supported with the added benefit of Ethernet and RS232 control.

How far can the signal travel?

Under perfect transmission conditions our HD receivers will operate at 30, 50 or 100m (@1080p) depending on the model used. Perfect conditions mean no electrical interference, straight cable runs with no bends or kinks and no patch panels or wall outlets. If some of the above are factors in your installation then signal strength and bandwidth can be compromised. If a cable run is reaching the upper limit of the receivers' capabilities, then the signal can be boosted by way of an extender set (Rx TX) or by simply using an in-line repeater. Our transmission signals can be repeated up to 5 times (250m) using a conventional TMDS signal or 7 times (700m) using HDBaseT technology.

What about 3D?

All of our matrix switches and most of our extender products will pass-through a 3D Blu-ray signal. The 30m and Coax extender sets do not support frame sequential 3D (Blu-ray), but will still pass-through interlaced stereoscopic 3D (Satellite etc.)

How do I control the sources?

Most of our HDMI distribution products support some kind of IR pass-through from point-to-point extender sets to pro and HDBaseT matrices. Most of the range now supports wideband IR meaning it is compatible with any IR device available on the market. Our Pro and HDBaseT matrix range (Cat 5e) has IR pass-through from each of the outputs and has discrete IR outputs at the switch end, meaning you can have multiple identical sources yet the IR would be routed only to the applicable source.

Do I need power at the TV end?

Yes. Our HD display adaptors require a 5v power supply at the TV end to operate. It's important that these are powered locally and do not receive remote power from the rack as there can be issues resulting from voltage drop along the length of cable. Our new USB power cables overcome the problem of having a second mains outlet behind the TV. These useful leads draw the 5v from the USB socket on the TV to power the receiver, this also means that the receiver is only powered when the TV is on making the system more environmentally friendly.

Do I need to use 1 or 2 cables?

Using our conventional pro (TMDS) transmission method the Video & Audio is sent along cable #2, IR and HDCP data is sent along cable #1. Using our HDBaseT technology it's possible to send Audio (up to DTS Master), Video (up to 4k), Ethernet (10/100), and control (RS232 & 2-way IR) down a single Cat 5e cable.

Are Wyrestorm products compatible with HDMI 1.4?

HDMI 1.4 refers to a list of 'features' that a device is capable of supporting, including Ethernet channel, return audio channel, 3D etc. Due to the continuously evolving nature of the technology, HDMI Licensing LLC have now decided to simplify terminology by testing and referring to cable in terms of STANDARD or HIGH-SPEED rather than in generations 1.3, 1.4 etc.

• STANDARD (or "category 1") HDMI cables perform at speeds of 75Mhz or up to 6.75Gbps, which is the equivalent to a 720p/1080i signal.

• All Wyrestorm equipment support HIGH-SPEED (or "category 2") HDMI cables that have been tested to perform at speeds of 340Mhz or up to 10.2Gbps, which is the highest bandwidth currently utilised over an HDMI cable and can successfully handle 1080p signals including those at increased color depths and/or increased refresh rates from the Source. High-Speed cables are also able to accommodate higher resolution displays, such as WQXGA cinema monitors (resolution of 2560 x 1600).

What about screens with different resolution capabilities?

When sending a signal point to point a TV will communicate it's capabilities to the source, then the source will output a suitable signal that compatible (i.e. 1080p Stereo audio). If you were to use a matrix switch with three 1080p screens and one 1080i screen, the resultant image would be 1080i across all screens. The matrix switches do not scale per output but instead negotiate with the source a signal that all screens are capable of supporting.

How does the Matrix cope with HDCP?

HDCP (High Definition Copyright Protection) is a feature built in to HDMI devices to prevent theft of or illegal distribution of HD content. Unlike competing products, Wyrestorm matrix switches are legal and comply with HDCP regulations. They do this by assigning a "key" to every display connected to the switch. HDCP "keys" are assigned to a display when connected to a HDMI device normally. This doesn't change when connected to a switch; it just assigns more of them.

I can get 1080i but not 1080p at a TV location

Firstly ensure that both the source is outputting 1080p and that the TV is Full HD 1080p screen. If this is the case then the receiver Cat 5e or Coax may need setting up for long cable mode using the DIP switches. This useful feature uses an alternative Equalisation method to re-sync the signal over longer distances.

I cannot get a signal out from my A/V receiver along a Cat 5e extender set

Check to ensure that the A/V Receiver isn't adding CEC (HDMI Control Protocol) to the outgoing signal, this can sometimes have an effect on the HDMI signal.

14. Maintenance

Clean this unit with a soft, dry cloth only. Never use alcohol, paint thinner or other harsh chemicals.

15. Product Service

Provided Service:

1. Damage requiring service: This unit should be serviced by a qualified service personnel if:

• The DC power supply or AC adaptor has been damaged.

• Objects or liquid have gotten into the unit.

• The unit has been exposed to rain.

• The unit does not operate normally or exhibits a marked change in performance.

• The unit has been dropped or the cabinet damaged.

2. Servicing Personnel: Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorised servicing personnel.

3. Replacement Parts: When parts need replacing, ensure parts approved by the manufacturer are used – either those specified by the manufacturer or parts possessing the same characteristics as the original parts. Be aware – unauthorised substitutes may result in fire, electric shock, or other hazards and will invalidate your warranty.

4. Safety Check: After repairs or service, ask the service personnel to perform safety checks to confirm the unit is in proper working condition.

16. Mail-in-service

When shipping the unit, carefully pack and send it prepaid, with adequate insurance and preferably in the original packaging. Please include a document or letter detailing the reason for return and include a daytime telephone number and/or email address where you can be contacted.

If repair is required during the limited warranty period, the purchaser will be required to provide a sales receipt or other proof of purchase, indicating date and location of purchase as well as the price paid for the product. The customer will be charged for the repair of any unit received unless such information is provided.

17. Warranty

Should you feel your product does not function adequately due to defects in materials or workmanship, we (referred to as “the warrantor”) will, for the length of the period indicated below (starting from the original date of purchase) either:
a) Repair the product with new or refurbished parts.
or
b) Replace it with a new or refurbished product.

Limited warranty period:
All Wyrestorm products are covered by a 2 year PARTS and LABOUR warranty. During this period there will be no charge for unit repair, replacement of unit components or replacement of product if necessary.

The decision to repair or replace will be made by the warrantor. The purchaser must mail-in the product during the warranty period. This limited warranty only covers the product purchased as new and is extended to the original purchaser only. It is non-transferable to subsequent owners, even during the warranty period.

A purchase receipt or other proof of original purchase date is required for the limited warranty service.

16. Warranty Limits and Exclusions

1. This Limited Warranty ONLY COVERS failures due to defects in materials or workmanship and DOES NOT COVER normal wear and tear or cosmetic damage.
The limited warranty also DOES NOT COVER damage that occurs in shipment or failures caused by products not supplied by the warrantor, failures resulting from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, incorrect installation, set-up adjustment, implementation of/to consumer controls, improper maintenance, power line surge, lightening damage, modification, service by anyone other than a manufacturer-approved service centre or factory-authorised personnel, or damage attributable to acts of God.

2. There are no express warranties except as listed under “limited warranty coverage.” The warrantor is not liable for incidental or consequential damage resulting from the use of this product or arising out of any breach of this warranty.
For example: damages for lost time, the cost of having a person/persons remove or re-install previously installed equipment, travel to and from service location, loss of or damage to media, images, data or other recorded/stored content. The items listed here are not exclusive, but are for illustration only.

Parts and service not covered by this limited warranty are not the responsibility of the warrantor and should be considered the responsibility of the individual.

19. Reference Logs

Wyrestorm Matrix INPUT installation reference log

INPUT				
Input number on Matrix	Source Location	Source Details	Source resolution & audio settings	Cable Number
1				
2				
3				
4				
5				
6				
7				
8				

Wyrestorm Matrix OUPUT installation reference log

OUTPUT				
Output number on Matrix	Output Location	Display Details	Display Resolution & Audio Settings	Cable Number
1				
2				
3				
4				
5				
6				
7				
8				

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We reserve the right to change specification or product dimensions at any time.